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Contents

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1

Markets and Institutions in the Rise of London as a Financial Center in the Seventeenth Century

Larry Neal and Stephen Quinn

Informal networks are an important technology in financial development, and successful formal systems have usually replaced previously successful informal systems. Recent examples in the U.S. include the development of venture capital firms and the rise of NASDAQ from the previous over-the-counter market for small capital equities. For earlier examples, Lance Davis has highlighted the importance of personal relationships for effective financial intermediation in the early national development of the U.S. economy. The Savings Bank of Baltimore, while drawing on the deposits of numerous small investors, was owned by the wealthy few of Baltimore, the 134 original incorporators responsible for electing annually the twenty-five directors who oversaw the daily operations of the bank. Over time, the bank became professionally managed, maintaining an arm's length relationship to the borrowing needs of its stockholders.[1] For New England textile mills, which borrowed both short and long term from a wide range of intermediaries and individuals in the period 1840–1860, Lance Davis also found that individual lenders often reappeared in a given firm's accounts as the source of special loans in times of crisis, often at higher rates than were enforceable under usury laws.[2]

In addition to the evidence of important personal, presumably informal, relationships on both the savings and the investment sides of financial intermediation in the early U.S. economy, Davis noted a number of English precedents. Savings banks in the U.S. were typically based on the ideas of the national savings banks formed in Britain after the Napoleonic Wars. Also, the varieties of lending sources available to New England textile mills

[1] Peter Payne and Lance E. Davis, *The Savings Bank of Baltimore, 1818–1866: A Historical and Analytical Study* (Baltimore: The Johns Hopkins Press, 1956): Chapter IV. In special cases, however, Johns Hopkins had access to renewed and enlarged loans, sometimes at favorable rates, so that personal connections still mattered.

[2] Lance E. Davis, "The New England Textile Mills and the Capital Markets: A Study of Industrial Borrowing 1840–1860," *Journal of Economic History* 20 (March 1960): 1–30.

all had their English antecedents, from trade credit extended by merchant houses to loans by country banks to mortgages from individuals.[3]

The effectiveness of the English-style intermediation depended on an integrated financial system within which each component could contribute its comparative advantage. Integration was secured through a deep, highly liquid, market for bills of exchange in London that mobilized short-term credit. An integrated market for short-term, essentially mercantile, credit arose in England and in Northwest Europe well before an integrated market for long-term credit or bonds. Davis noted a similar situation in his study of New England textile mills, where he found that interest rates charged for short-term loans moved together regardless of the location or category of lender, whereas long-term rates varied widely depending on the institutional and legal constraints inhibiting the respective lenders. English, and eventually Scottish, industrial development also relied initially on short-term credit extended via inland bills of exchange that used London as a domestic hub in the eighteenth century. The inland bill of exchange, in turn, was an offshoot of the prior success of London as an international hub for foreign bills of exchange. By the end of the seventeenth century, this bill market reached from London to the rest of Europe and across the Atlantic. Although the bill market would become formalized through discount houses and Bank of England branches after 1825,[4] the system began informally long before through a network of merchants and bankers that connected London to the world economy.

International credit market integration in the late seventeenth century required the ability to take advantage of favorable exchange rate differentials with regard to geographic location (London, Amsterdam, Paris, and others) and media of exchange (bills of exchange and bullion). London-based bankers acquired this ability by using a network of merchants and bankers that spanned nations, religions, and trade specializations. This network was more diverse than the kin groups, religious connections, or guilds that had supported the rise of international trade during the Middle Ages. Members of the London network were bound by financial interaction revolving around the banking center of London. By using bills of exchange written between a banker and his agent, merchants became stakeholders in the monitoring and enforcement of agency relationships. The efficacy of the network, however, did vary with the nature of a nation's legal system. We find that the autocratic tendencies of France diminished the credibility

[3] Larry Neal, "The Finance of Business during the Industrial Revolution," in *The Economic History of Britain*, vol. 1, 1700–1860, 2nd ed., eds. Roderick Floud and Donald N. McCloskey (Cambridge: Cambridge University Press, 1994): 151–81; and Stephen Quinn, "Finance and Capital Markets" in *The Cambridge Economic History of Britain*, vol. 1, 1700–1860, 3rd ed., eds. Roderick Floud and Paul Johnson (Cambridge: Cambridge University Press, forthcoming).

[4] W. T. C. King, *History of the London Discount Market* (London: George Routledge & Sons, 1936).

of agents, whereas the Dutch and English commitment to international commercial law strengthened overseas enforcement.

With information flows crisscrossing Northern Europe, London-based bankers could successfully specialize in the supply of international financing. Merchants both secured the system for the bankers and benefited from the services provided by the bankers. Essential to the character of London's emerging financial system was the lack of a singular institution to coordinate information. A substantial network was in place as early as 1670. By the founding of the Bank of England in 1694, London did not require a Dutch-style exchange bank to support the system of international payments. Instead, the Bank of England was designed along the lines of the other fractional reserve banks that already formed a close-knit network within London. At the turn of the eighteenth century, no single bank in London dominated the market for bills of exchange. Rather, deepening channels of finance enmeshed the bankers of Lombard Street with agents in various ports and the many merchants who connected them.

Examining the ledgers from the late seventeenth century of Edward Backwell, the preeminent goldsmith–banker at the time, we find that Backwell relied on the existing network of foreign merchants to connect himself to overseas agents. The goldsmith made merchants his stakeholding partners in the process of moving funds and monitoring the behavior of his primary agents with whom he held covering balances in foreign currencies. With his arrangement of primary agents and multiple monitors, Backwell and other London bankers were supplying bills, offering discounts, and arranging bullion shipments by 1670. Although London was not yet the banking center that would come to dominate international finance, it was creating a new style of banking and payment system that would form an integral part of the financial revolution. The English system was oriented to an active market in bills of foreign exchange, a market that was unregulated but disciplined by English law, based on existing law merchant for dealings in goods. Even after the establishment of the Bank of England, this payment system continued to flourish, focused increasingly on Amsterdam and Hamburg rather than Paris or Madrid. In the merchant-controlled cities of London, Amsterdam, and Hamburg, the law merchant governed the settlement of disputes arising from protested bills of exchange. In the royal cities of Paris and Madrid, by contrast, the often-arbitrary law of the monarch could disrupt the web of credit that supported the prospering trade of Western Europe.

We then find that the practices of arbitrage[5] in foreign exchange, making foreign payments that took advantage of minor fluctuations in

[5] "Arbitrage" in this period meant comparing exchange rates on foreign bills of exchange to find the cheapest means of payment. Only since World War II has it come to mean simultaneous buying low in one market and selling high in another market, implying riskless profit taking. See the extended discussion in Geoffrey Poitras, *The Early History of Financial Economics, 1478–1776* (Cheltenham, UK: Edward Elgar, 2000): 243–50.

cross-exchange rates from the mint par ratios, were already emerging in the Restoration period of London, well before the revolution in public finance that occurred after 1688. Again, the evidence is taken from the complex payments arranged by Edward Backwell among his agents in Cadiz and Amsterdam. By the middle of the eighteenth century, Postlethwayt's *Universal Dictionary of Trade and Commerce* could devote many pages to describing these payment alternatives taken by London merchants. That this system survived the systemic shocks of several major wars and the financial crisis of 1720 testifies to the inherent durability of trade networks when credit and payment networks sustain them. It is the credit nexus established in the seventeenth century, more so than the preceding kinship, religious, or political nexuses, that sustained the long-run development of trade relationships in Northern Europe.

Finally, we examine in detail how enforcement procedures in case of credit default could be invoked in the London–Amsterdam nexus by contrast to the arbitrary rules set in Paris. The evidence derives from the systemic crisis that affected all of Europe with the collapse of both the Mississippi bubble in France and the South Sea bubble in England. In the general collapse of the European payments system, a diamond merchant in Amsterdam tried to force payment by another merchant banker in Amsterdam of bills drawn on him by a goldsmith-banker in London. At the same time, the Amsterdam diamond merchant had to deal with default by a merchant–banker in London. The different procedures followed in the two cases of default and the different outcomes that emerged in London and Amsterdam demonstrate the long-run viability of the merchant-oriented legal system. The "bubbles" episode was a defining moment for the competing systems of London and Paris – thereafter in the eighteenth century, financial relationships flourished between London and Amsterdam, with spillover to Hamburg and the Baltic, while the French and Mediterranean connections languished.

Networks

As networks of European trade developed, with Amsterdam at the center, the supply of bills of exchange became a viable commercial specialization, not only in Amsterdam but also at each of the outlying nodes. Bills of exchange were orders to pay in a foreign port in a foreign currency at some time in the future. Bills were similar to modern travelers' checks, and were the dominant means of international payment in the early modern era. Instead of merchants arranging all the elements needed for a bill, third party intermediaries supplied credit or other services. This innovation in financial intermediation liberated individual traders from the costs of maintaining foreign contacts, settling their offsetting accounts, acquiring credit information on foreign traders, and other costly activities. As the number of merchants who dealt with foreign markets within Europe increased, the value added

by the suppliers of financial intermediation became greater. In London, at least, these services became concentrated in bankers. From the middle of the seventeenth century, these bankers were transforming from goldsmiths to purely financial businesses.

The supply of international services required agents in foreign ports. The principal–agent problem faced by London-based bankers was of particular importance because the city was evolving into a new kind of hub for international finance, a hub without an exchange bank. An exchange bank like Amsterdam's held specie deposits on which bills of exchange could be written.[6] Such banks brought many advantages to suppliers of bills. The transaction cost of settling bills was reduced by the clearing of accounts within the bank (in banco); risk was also reduced because default meant expulsion from the bank. Both of these features – reduction of transactions cost and reduction of default risk – enjoyed increasing returns as more merchants participated in the exchange bank. Because the Exchange Bank acted as a clearinghouse for international payments, it centralized information of default and orchestrated ostracism of the defaulter. The city of Amsterdam required all bills of exchange above 300 guilders to be processed through the city's exchange bank, so network economies of scope were enjoyed.[7] Indeed, funds on deposit at the *Wisselbank* enjoyed a persistent premium (*agio*) over circulating coins.[8]

The differences between London and Amsterdam translated into divergent paths of development. Founded in 1609, the Amsterdam Exchange Bank replaced the paper notes then being issued by cashiers and money changers.[9] As a result, the development of Amsterdam's private banking system appears to have been constrained for a century.[10] In the absence of an exchange bank, London developed a strong banking system. Individual bankers supplied deposits, means of payment, lending, and money changing.[11] As a group, the bankers offered mutual acceptance and systemic monitoring.[12] To offer overseas services, London bankers had to arrange a network of international monitoring without the benefit of a centralized institution. A measure of

[6] J. G. van Dillen, "The Bank of Amsterdam," in *History of the Principal Public Banks*, ed. J. G. van Dillen (The Hague: Nijhoff, 1934): 73–123.

[7] W. D. H. Assar, "Bills of Exchange and Agency in the 18th Century Law of Holland and Zeeland," in *The Courts and the Development of Commercial Law* ed. Vito Piergiovanni (Berlin: Dunaker and Humbolt, 1987): 103–30.

[8] J. McCusker, *Money and Exchange in Europe and America, 1600–1775: A Handbook*, (Chapel Hill: University of North Carolina Press, 1978): 46–51.

[9] Pit Dehing, and Marjolein 't Hart, "Linking the Fortunes: Currency and Banking, 1550–1800," in *A Financial History of the Netherlands*, eds. Marjolein 't Hart, Joost Jonker, and J. L. van Zanden (New York: Cambridge University Press, 1997): 43.

[10] Dehing and 't Hart, "Linking the Fortunes," 43–4.

[11] R. D. Richards, *The Early History of Banking in England* (London: P. S. King & Son, 1929): 23–4.

[12] S. Quinn, "Goldsmith-Banking: Mutual Acceptance and Inter-Banker Clearing In Restoration London," *Explorations in Economic History* 34 (October 1997): 412.

London's success in this regard was that when the Bank of England was founded in 1694, it was as a fractional reserve, note-issuing bank patterned on existing banks. The London financial system had developed to the point that the new corporate bank was not created to dominate the London bill market or act as a clearinghouse.

Individual London bankers could handle their foreign contacts in a variety of ways. The most secure arrangement was to send an employee abroad. However, such employees were expensive to maintain and were limited to primary markets only.[13] An alternative was to retain correspondents on a for-fee basis. This scheme reduced costs relative to maintaining employees. For an individual banker in London, the cost of placing employees in numerous continental cities was prohibitive. Because goldsmiths ran shops with only a few apprentices or clerks, the agent-based system was adopted.

The archetypal principal–agent relationship was based on merchants who agreed to accept each other's bills for a fee and then settle the balance by creating an offsetting bill.[14] "In such cases, Amsterdam merchants accepted bills drawn on them for the account of others and covered themselves by redrawing."[15] Transaction costs were kept low because offsetting bills meant specie did not have to be transported. Vesting overseas agents with fiduciary power, however, created the risk of misbehavior. Kinship or religious ties were often insufficient to cover the wide network of commerce that had developed by this era. Creation of reputation effects by repeated business was another important tool. Agents with much to gain from future business were less likely to cheat. When the goldsmith–banker Edward Backwell set up a web of foreign agents, he usually concentrated his foreign business on only one correspondent per city. In this way, the banker generated considerable business with a trusted agent. Building this reputation was a service that Backwell supplied to customers who could not manage such levels of activity on their own.

Concentrated business, however, still left risk for the banker. The London banker had to be aware of trouble before punishment could be pursued. The arrangement would be more effective if news of malfeasance could be spread to damage the agent's reputation with other principals. London-based bankers needed to generate a flow of information sufficient to extend reputation effects to a network of bankers and merchants. In this way, a default to one member became known and punished by the whole. By the middle of the eighteenth century, such reputation effects were well established.

[13] J. Price, "Transaction Costs: A Note on Merchant Credit and the Organization of Private Trade," in *The Political Economy of Merchant Empires*, ed. J. D. Tracy (Cambridge: Cambridge University Press, 1991): 279.

[14] L. Neal, *The Rise of Financial Capitalism* (New York: Cambridge University Press, 1990): 5–9.

[15] Price, "Transaction Costs," 283–84.

The conduits for this information were merchants. Seventeenth century merchants passed information between ports constantly. One family firm was found to have saved 10,500 letters over the years 1668 to 1680.[16] The correspondence of merchants brim with all manner of information. News of market conditions, war, exchange rates, bankruptcies, and anything else of interest was routinely shared. The letters were saved because they formed a record of advice given, orders received, and actions taken. If a merchant had to explain why a shipment was lost, why a venture was unprofitable, or why he could not pay his bills, the letters could clear his good name. Published price currents complemented this effort by providing a third party record.[17] Even though Amsterdam was clearly the hub for distributing commercial information at this time,[18] London was able to exploit effectively the information channels that existed in northern Europe.

The financial side of this correspondence was the bill of exchange. Merchants saved copies of bills for the same reasons they kept letters. Unlike letters, bills represented payments, and merchants named in the bills became stakeholders in the payment process. A default, like a bounced check, affected all named parties. The individuals added by endorsement after the original bill was drawn were also dragged into any failed performance because, if the bill was not paid, everyone who endorsed the bill became liable. The Dutch developed transfer by endorsement in the sixteenth century specifically as a means to involve merchants in the quality of the bills they passed. The English adopted the system.[19]

By using merchants to pass funds to agents abroad, bankers like Edward Backwell took advantage of the incentives that bills created. When the banker accepted or wrote bills involving his foreign agents, his ledger clearly named the merchants involved. For example, on March 28, 1670, the banker Edward Backwell drew a bill of exchange ordering Henry and Charles Gerard to pay William Jarret 2,080 guilders.[20] The Gerards were Backwell's agents in Amsterdam. Should the Gerards have failed to pay as ordered, Jarret would become a party to the dispute. Similarly, any merchant to whom Jarret transferred the bill to would also become involved. Jarret had clear

[16] H. Roseveare, *Markets and Merchants of the Late Seventeenth Century* (Oxford: Oxford University Press, 1987), 14.

[17] C. Gravesteijn and J. J. McCusker, *The Beginnings of Commercial and Financial Journalism* (Amsterdam: NEHA, 1991), 43–53.

[18] Woodruff D. Smith, "The Functions of Commercial Centers in the Modernization of European Capitalism: Amsterdam as an Information Exchange in the Seventeenth Century," *Journal of Economic History* 44 (December 1984): 985–1005; and Michel Morineau, *Incroyables Gazettes et Fabuleux Metaux* (Cambridge: Cambridge University Press, 1985).

[19] J. Rogers, *The Early History of the Law of Bills and Notes* (Cambridge: Cambridge University Press, 1995); and J. M. Holden, *The History of Negotiable Instruments in English Law* (London: Athlone Press, 1955).

[20] Royal Bank of Scotland, London, Backwell Ledger S, 1670–71, folio 41.

incentive to know that the bill was honored and settled. The merchants had a stake in monitoring Backwell's agent and would spread word of default to their colleagues.

We also know London bankers and their agents used a large number of different merchants for each port to send and receive bills. Although the banker might want to move large sums overseas, individual merchants wanted small bills in line with their smaller transactions. Thus, a number of merchants were used, which thickened the credit nexus and supplied multiple monitors for each agent. The effect was strengthened by integrating different religious and geographic communities. Each group added its internal system of monitoring and reputation to the whole. For example, on October 15, 1669, Backwell paid Abraham Doportos for a bill drawn and sold by the Gerards in Amsterdam to Simon Nunes Enriques and Simon Soares of Hamburg.[21] On August 23 of the same year, Backwell paid Jo. Patters for a bill drawn by the Gerards on Jo. Vandercloet of Rotterdam.[22] George and Robert Shaw of Antwerp drew bills on Backwell by way of Engeld Muyhuk, Albertus Lunden, Barnardo Bree of Brussels, and Bartholomew van Berchen of Bruge.[23] Backwell had a wide range of merchants also moving between London and Middleburg, Hamburg, Cadiz, Seville, and Paris.

The problem with a diverse body of merchants was passing news of default on to others and organizing collective action. Here banks in London helped solve the problem. In Amsterdam, the city's Exchange Bank monitored and enforced all bills clearing through the city. In London, the system of individual banks mimicked the same role. Word of an agent's behavior would pass back to the banker through the injured merchant and protested bill. The banker then passed word to the numerous other merchants who held accounts in London. The banker also had a regular channel to the other bankers in the city via regular, bilateral clearing arrangements.[24] The web tightened further because merchants banked with more than one shop. For example, on July 13, 1669, Backwell paid Sir John Frederick and Company for a bill drawn by the Gerards in Amsterdam after passing through the shop of another goldsmith–banker, John Lindsay.[25] A number of other London bankers also appear in the process of moving bills to Backwell.

Use of multiple merchants per banker and multiple bankers per merchant expanded the network's ability to spread information. For example, the Gerards of Amsterdam received bills from Backwell from over twenty different merchants over the twelve months from March 1670 to March 1671. Default by the Gerards would spread to a large number of merchants that

[21] Backwell Ledger R, 1669–70, folio 481.
[22] Backwell Ledger R, 1669–70, folio 63.
[23] Backwell Ledger S, 1670–1, folios 76, 328.
[24] Quinn, "Goldsmith–Banking," 418–24.
[25] Backwell Ledger R, 1669–70, folio 62.

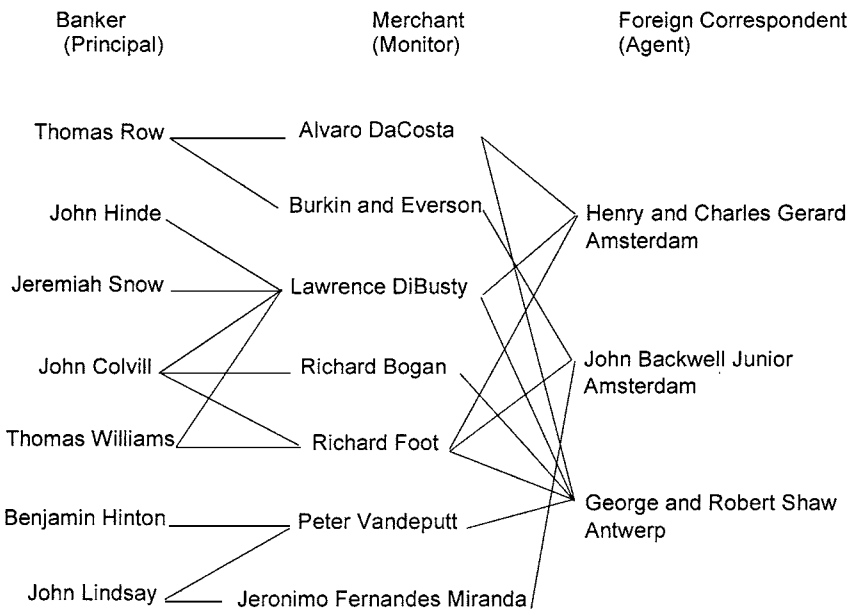

FIGURE 1.1. An Example of the Connections between Bankers, Merchants, and Foreign Agents in 1670
Source: Edward Backwell's Ledger S, 1670–1, folios 24, 92, 326, 337, 379, 383, and 442.

would expand the scope of damage to the Gerards' reputation. Also, these merchants often banked with more than one goldsmith in London. Again, these contacts would spread knowledge of improper behavior. Figure 1.1 connects seven merchants that presented bills from the Low Countries to Backwell in London and then transferred their resulting credit on the banker's ledger to other goldsmith–bankers. These examples are very exclusive because they do not consider the many merchants who presented bills to Backwell but did not bank with him. Such bills would have been settled by cash, note, or some other form of payment, rather than by ledger credit. More, the examples in Figure 1.1 also do not include merchant transactions with goldsmiths other than Backwell (listed in Backwell's ledger) who were not directly associated with a bill of exchange. Merchants banking with Backwell regularly transferred funds to other bankers. Even under these restrictive terms, a substantial number of goldsmith–merchant–agent connections existed in the year 1670.

The British East India Company also used the same arrangements. When engaged in continental bullion purchases in 1675, the East India Company used the same agents as Backwell: the Gerards in Amsterdam; the Banks in Hamburg; Rowland Dee in Cadiz; and Benjamin Bathurst in

Seville.[26] Moreover, the company used numerous prominent merchants and London goldsmith–bankers to pass the funds.[27] The strong similarities between the banker and the East India Company in their payment procedures suggested this was common practice in seventeenth century London.

Another common element between the East India Company and the goldsmith–banker was that covering balances with agents. In contrast to a correspondent relationship premised on credit, both the company and the banker regularly built up balances with their agents in advance of drawing bills payable by those agents. This was an expensive arrangement because neither operation earned interest on funds placed abroad. However, when the East India Company or Edward Backwell sent a bill, the agent already owed that amount. Covering balances made an agent's failure to honor a bill a failure to retire debt rather than a failure to extend credit. One benefit was that the agent would not have to create an offsetting bill, so the likelihood of acceptance would increase. A second benefit was that not honoring an order to pay backed by a debt was a more serious matter than failing to extend credit. By analogy, today a credit card has more latitude in denying funds than a demand deposit. The law regarding debt was well advanced by the seventeenth century, whereas that binding agents to credit-granting commitments was less clear.[28]

The potential problem of establishing that an agent in Amsterdam actually owed a principal in London was mitigated by the use of merchants to transfer funds. Merchants witnessed the transfer of funds and had incentives to see that those transfers were honored and remembered. Merchants formed the spokes and bankers the hub of the London network. The flow of information was necessary for London-based bankers to conduct overseas finance.

Arbitrage

The incentive for bankers and merchants to cooperate in operating the web of credit and information lay in the profits to be earned, and shared, in the arbitrage of foreign exchange. For example, bankers could offer bills between pairs of ports to capture favorable exchange rate differences. By increasing demand for bills denominated in weaker currencies and increasing the supply of bills denominated in stronger currencies, banker networks created a flow of funds that narrowed exchange rate differentials. Whereas the integration of eighteenth century exchange markets has been quantitatively established, data to perform similar tests for the seventeenth century are not available.[29]

[26] India Record Office, London, East India Company Ledger 1673–5, L/AG/1/1/6.

[27] East India Company Ledger 1673–5, L/AG/1/1/6.

[28] Assar, "Bills of Exchange and Agency"; and Rogers, *Early History*.

[29] E. Schubert, "Arbitrage in the Foreign Exchange Markets of London and Amsterdam During the 18th Century," *Explorations in Economic History* 26 (January 1989): 1–20; and Neal, *Rise of Financial Capitalism*.

In place of market data on exchange rates, we use the accounts of leading banking firms to show that bankers and merchants took advantage of differences between direct rates and cross rates throughout the network of leading European ports well before 1700. This, incidentally, shows that the origins of international market integration arose well before 1700 and before the revolution in English public finance in the 1690s.

A network of agents was necessary for taking advantage of exchange rate and cross-exchange rate opportunities. More, such networks could provide spatial economies of scale. The marginal effect of adding one more information node to a network increased geometrically with the increased size of the network. Adding Hamburg to a London–Amsterdam network added two cross connections: Hamburg–London and Hamburg–Amsterdam. Adding Paris to the Hamburg–London–Amsterdam network would add three links and so on. Each new link expanded the returns from the fixed investment embodied in existing nodes and opened new cross-market opportunities. The profits to be shared among participants engaged in effective arbitrage maintained the cohesion of the credit network as it expanded.

With regular correspondence, dealers in bills of exchange would know when differences in rates developed between ports. "When such local disequilibria occurred it was natural for the more adventurous dealers to practice arbitrage – dealing with a third centre whenever rates on a second centre might prove more advantageous."[30] Henry Roseveare found that the London merchant Jacob David moved his funds from Amsterdam to Antwerp to take advantage of cross-rate imbalances in 1676.[31] More, David did this on the advice he had received by letter from his underwriter, Claude Hays. At other times, David routed funds via Amsterdam and Venice on the way to Hamburg.[32]

Edward Backwell engaged in similar arbitrage behavior at an even earlier date. Much of Backwell's foreign transactions involved supplying funding for the English fleet provisioned out of Cadiz. Backwell provided banking services to the famous diarist Samuel Pepys and other purchasing agents for the Royal Navy.[33] For example, on February 9, 1671, Backwell drew bills due on Rowland Dee, Junior, of Cadiz for 15,000 pieces of eight (£3,375). Dee's account with Backwell recorded payment of the bill to Sir Hugh Cholmely at 20 days sight, value of Samuel Pepys. Because of his various agents, the banker could also supply bills directly between Spain and the Low Countries. After supplying the Royal Navy with silver and honoring bills drawn in London by Backwell, Rowland Dee balanced his accounts with the banker by drawing bills both on London and on Backwell's agents in Amsterdam.

[30] Roseveare, *Markets and Merchants*, 53.
[31] Roseveare, *Markets and Merchants*, 593.
[32] Roseveare, *Markets and Merchants*, 593
[33] Richards, *Early History of Banking*, 74–5.

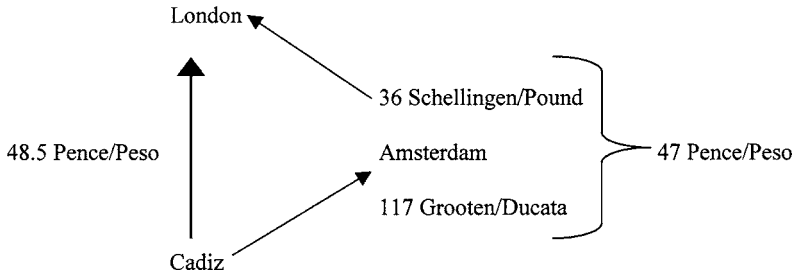

FIGURE 1.2. An Example of Arbitrage between Cadiz and London via Amsterdam in 1670
Source: See note 34.

In the twelve months starting in March 1670, Dee drew £6,000 worth of bills directly on London. The Cadiz agent drew an additional £3,769 worth of bills on the banker's agents in Amsterdam and £4,474 on the goldsmith's agents in Antwerp.[34]

The timing of Dee's bills, however, was most important. Rowland Dee switched from drawing bills on London to only drawing bills on the Low Countries in the Fall of 1670. This would have benefited Backwell in London. Through the summer of 1670, Dee drew bills on London at a rate of 48.5 pence/peso (2 month bills). When Dee switched to Amsterdam and Antwerp in September and October, the Dutch schellingen had already appreciated against the pound by two and a half percent since May (34.6 Sch/£ in May to 35.5 in September). When the Dutch schellingen reached 36 to the English pound in October of 1670, Dee's pesos-via-Holland were only costing Backwell 47 English pence a piece instead of the 48.5 they had during the summer.[35] That was a 3 percent gain. With the winter of 1670–1, the Dutch rate strengthened relative to Spain as well, so the cross-rate differential favoring the Low Countries was eliminated. In February of 1671, Rowland Dee resumed drawing bills directly on London. Figure 1.2 presents a schematic of Backwell's arbitrage behavior.

The ability to switch financial channels was evident. Merchants and bankers had the means to capture favorable cross-rates. Moreover, the information the network provided would have been essential to successful manipulation of exchange rate differentials. Eric Schubert has described arbitrage between markets for bills as uncertain.[36] From the perspective of pricing bills, uncertainty entered into the demand for bills. Consider a

[34] Backwell Ledger S, 1670–71 with Dee in Cadiz, folios 300, 320, 593, 595; Gerard in Amsterdam, folios 41, 443, 444; Shaws in Antwerp, folios 76, 328, 573.

[35] The calculation was (117 grooten/ducata)(0.72533 ducata/peso)(0.08333 schellingen/grooten)[1/(36 schellingen/£)](240 pence/£) = 47.15 pence/peso. Denominational relationships from McCusker, *Money and Exchange*, 44, 61, 99–100, 107.

[36] Schubert, "Arbitrage."

market for bills in London. Information regarding the supply of pounds would be apparent to all parties in London. The demand side, however, was comprised of agents for merchants in Amsterdam and other cities wanting to buy pounds with their schellingen, pesos, and so on. For those trying to price a bill in London, information on actual demand would be as old as the latest ships crossing the channel. Expectations of demand arriving from foreign ports would play a discriminating role. A supplier of bills in London with better information about conditions in Amsterdam would have an advantage. "Good manners, if not explicit instructions, required merchants in most European centres to keep their customers informed of the current rates of exchange."[37] The better the information, the faster markets would tighten the weave of cross-rates. The same information was also essential for financial speculation as well. The implicit rate of return on bills was speculative because it relied on re-exchange.[38] The return to *dry exchange*, meaning rolling over the value of a bill into a bill due back at the initial port, depended on the exchange rate in the foreign port when the first bill fell due. Information from abroad reduced the risk of speculation by improving estimates of where foreign exchange markets were moving.

The network also aided the flow of bullion. In late 1669, Backwell drew down some of his account with the Gerards of Amsterdam by having the agents buy bullion and coin. On the banker's behalf, the Amsterdam agents acquired Spanish pistoles and pieces of eight, French crowns, Venetian ducats, and Dutch rixdollars, along with ingots and bars of silver and gold.[39] Market integrating arbitrage between bills and bullion required both access to and knowledge of foreign markets with Amsterdam being the key market.[40] Thus, the network of bankers and merchants provided the means to connect the many European markets for bills of exchange, gold, and silver. The question remains, how could this credit network survive repeated shocks inflicted on it by the succession of wars, revolutions, and financial crises that characterized the rest of the seventeenth century and the eighteenth century?

Enforcement

A detailed example of enforcement in action was provided by the surviving correspondence of an Amsterdam diamond merchant, Bernard van der Grift, with his principal client in London, Lord Londonderry (Thomas Pitt, Jr.)

[37] Roseveare, *Markets and Merchants*, 592.

[38] R. De Roover, "What is Dry Exchange? A Contribution to the Study of English Mercantilism," *Business, Banking, and Economic Thought* (1974): 183–99.

[39] Backwell Ledger R, 1669–70, folios 64, 481–2.

[40] S. Quinn, "Gold, Silver, and the Glorious Revolution: Arbitrage between Bills of Exchange and Bullion, "*Economic History Review* 49 (August 1996): 474–82.

in the years 1720–5.[41] Van der Grift was trying to collect sums owed to Londonderry by John Law, the result of a tremendous loss suffered by Law in speculating against stocks traded on the London stock market.[42] From Paris, Law had instructed his agent in London, the goldsmith–banker, George Middleton, to pay Londonderry in Amsterdam.

To make this payment, Law told Middleton to draw five bills on his Amsterdam agent, the representative of the French *Compagnie des Indes*, Abraham Mouchard. Middleton drew the bills as he was instructed, tendered them to Londonderry as partial payment of the sums owed Londonderry by Law. Londonderry then endorsed them to his agent in Amsterdam, the diamond dealer Bernard van der Grift. In each bill, Middleton asked Mouchard to pay a stated sum in Dutch bank currency to Lord Londonderry based on value received from John Law. Londonderry, in turn, endorsed it to his agent in Amsterdam, van der Grift, so that van der Grift could receive the sum and credit it to Londonderry's account with him. Middleton would write a letter of advice to Mouchard, explaining the source of funds from Law that Mouchard should use in making the payment, while Londonderry wrote to van der Grift explaining how and when he wanted the funds used for his account. Mouchard was expected to accept the bill when van der Grift presented it to him. After signing his acceptance on the bill, it would become a negotiable instrument in Amsterdam, and van der Grift could discount it for immediate cash or hold it for the two months usance allowed to Mouchard to raise the sums and pay off the bill. Londonderry had made acquaintance with van der Grift while acting as the overseas agent for his father, Thomas Pitt, Sr., also known as Governor Pitt, perhaps the wealthiest diamond merchant in London. One of the largest capital transfers of the time ultimately had to be made through the credit network previously established by traders, in this case diamond merchants in London and Amsterdam.

Earlier in the year 1720, Londonderry had sent van der Grift five bills drawn on Mouchard by John Lambert, another goldsmith–banker of the time. In his letter of June 14 to Londonderry, van der Grift explained that Mouchard had not accepted the bills for payment. Instead of protesting the bills with a notary public in Amsterdam as the first step in pursuing legal remedies against Mouchard, van der Grift this time simply returned the bills as unpaid and unaccepted to Londonderry. Here he was simply following

[41] This correspondence is found in a bundle of letters in Chancery Masters Exhibits at the Public Record Office in London (C108/420). All dates on van der Grift's letters are Gregorian calendar, New Style, and correspond to eleven days earlier in Britain, still on the Julian calendar, Old Style.

[42] Details of this episode are in L. Neal, "George Middleton: John Law's Goldsmith-Banker, 1727–1729," in *Entrepreneurship and the Transformation of the Economy (10th–20th Centuries)*, eds. Paul Klep and Eddy van Cauwenberghe (Leuven: Leuven University Press, 1994); and L. Neal, "'For God's Sake, Remitt Me': The Adventures of George Middleton, John Law's Goldsmith–Banker, 1712–1729," *Business and Economic History* 23 (Winter 1994): 27–60.

Londonderry's instructions, who had suspected the bills might not be covered by funds Lambert had on account with Mouchard.

When van der Grift received the new set of bills drawn on Mouchard, this time by Middleton, he was naturally concerned for his client Londonderry. Despite his reservations about the ability of both Middleton and Mouchard to carry on payments in this manner, van der Grift promised to pay the bills Londonderry drew on him "on account of the value, and credit I have for your Lordship, (and I assure your Lordship on no other accounts)."[43] Wanting to keep the continued business of Londonderry, his principal in London, van der Grift was volunteering to pay out his own cash to Londonderry's creditors whether or not he received cash from Mouchard. All he asked was that the bills drawn by Middleton on Mouchard be dated payable before the bills Londonderry drew on van der Grift, a reasonable precaution in the uncertain circumstances of the time. Van der Grift intended to cover his payments on Londonderry's behalf by drawing on money owed him in London by a Lewis Johnson and to have this remitted to him via bills of exchange. It would be in Londonderry's interest to help out van der Grift in collecting the sums owed him by Johnson, if any difficulty arose in completing that contract.

As matters developed, van der Grift found in October 1720 that his speculations on South Sea stock with his agent in London, Lewis Johnson, had come to nought. Johnson had stopped payments on bills drawn on him. Nevertheless, van der Grift insisted that he could continue to meet Londonderry's drafts on him through other balances he had owing to him in London. But now Londonderry became van der Grift's agent in London to help resolve his claims on Lewis Johnson. Meanwhile, van der Grift continued to pay off Londonderry's partners in Amsterdam by accepting bills drawn on him by Londonderry, given that this time Mouchard had accepted the bills drawn on him by Middleton. Both sets of accepted bills were negotiable instruments, but van der Grift was holding on to the bills accepted by Mouchard. Given the general knowledge in Amsterdam of the payments difficulties Mouchard was facing as his source of funds in Paris dried up, any discount of one of Mouchard's accepted bills would have incurred a heavy risk premium as well as a hefty interest charge, given the general shortage of credit in Amsterdam.

So far, all that required appeal to enforcement mechanisms, whether formal or informal, was van der Grift's claim on Lewis Johnson, which he wished to use for making payments to Londonderry in London. To initiate proceedings against Johnson while still maintaining a flow of payments to Londonderry, van der Grift suggested that Londonderry send him back the protested bills of van der Grift on Johnson and sell £1,000 of South Sea stock that van der Grift had bought earlier through Londonderry. To maintain

[43] Public Record Office (PRO), Kew, London: Chancery Masters Exhibits, *Pitt v. Cholmondeley*, C108/420, Letter of September 24, 1720.